

AMSAT News Service Weekly Bulletins

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AMSAT NEWS SERVICE

ANS-334

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on <http://www.amsat.org> publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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ANS-334 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 334.01

>From AMSAT HQ KENSINGTON, MD.

DATE November 30, 2014

To All RADIO AMATEURS

BID: \$ANS-334.01

CubeQuest Challenge, a NASA Centennial Challenges Competition

Registration now is open for NASA's Cube Quest Challenge, the agency's first in-space competition that offers the agency's largest-ever prize purse.

Competitors have a shot at a share of \$5 million in prize money and an opportunity to participate in space exploration and technology development, to include a chance at flying their very own CubeSat to the moon and beyond as secondary payload on the first integrated flight of NASA's Orion spacecraft and Space Launch System (SLS) rocket.

"NASA's Cube Quest Challenge will engage teams in the development of the new technologies that will advance the state of the art of CubeSats and demonstrate their capabilities as viable deep space explorers," said Michael Gazarik, associate administrator for NASA's Space Technology Mission Directorate at NASA Headquarters in Washington. "Prize competitions like this engage the general public and directly contribute to NASA's goals while serving as a tool for

open innovation."

Challenge objectives include designing, building and delivering flight-qualified, small satellites capable of advanced operations near and beyond the moon. The challenge and prize purse are divided into three major areas:

Ground Tournaments: \$500,000 in the four qualifying ground tournaments to determine who will have the ability to fly on the first SLS flight;

Lunar Derby: \$3 million for demonstrating the ability to place a CubeSat in a stable lunar orbit and demonstrate communication and durability near the moon; and

Deep Space Derby: \$1.5 million for demonstrating communication and CubeSat durability at a distance greater than almost 2.5 million miles (4,000,000 km), 10 times the distance from the Earth to the moon

The Cube Quest Challenge seeks to develop and test subsystems necessary to perform deep space exploration using small spacecraft. Advancements in small spacecraft capabilities will provide benefits to future missions and also may enable entirely new mission scenarios, including future investigations of near-Earth asteroids.

"Cube Quest is an important competition for the agency as well as the commercial space sector," said Eric Eberly, deputy program manager for Centennial Challenges at NASA's Marshall Space Flight Center in Huntsville, Alabama. "If we can produce capabilities usually associated with larger spacecraft in the much smaller platform of CubeSats, a dramatic improvement in the affordability of space missions will result, greatly increasing science and research possibilities."

All teams may compete in any one of the four ground tournaments. Teams that rate high on mission safety and probability of success will receive incremental awards. The ground tournaments will be held every four to six months and participation is required to earn a secondary payload spot on SLS.

The Lunar Derby focuses primarily on propulsion for small spacecraft and near-Earth communications, while the Deep Space Derby focuses on finding innovative solutions to deep space communications using small spacecraft. Together, these competitions will contribute to opening deep space exploration to non-government spacecraft.

NASA's Centennial Challenges drive progress in aerospace technology - of significant value to the agency's missions -- and encourage broad-based participation in aerospace research and development. The challenges help find the most innovative solutions to technical challenges through competition and cooperation. There have been 24 Centennial Challenges events since 2005. NASA has awarded more than \$6 million to 16 challenge-winning teams.

NASA's Centennial Challenges Program is part of the agency's Space Technology Mission Directorate, which is responsible for innovating, developing, testing and flying hardware for use on future NASA missions. During the next 18 months, the directorate will make significant new investments to address several high-priority challenges for achieving safe and affordable deep space exploration. For more information about the directorate, visit: <http://www.nasa.gov/spacetech>

The Centennial Challenges Program is managed at Marshall and the

Cube Quest Challenge is administered by the agency's Ames Research Center in Mountain View, California. For more information on the Cube Quest Challenge, visit:
<http://www.nasa.gov/cubequest>

To learn more about NASA's challenges and citizen science efforts, visit:
<http://www.nasa.gov/solve>

[ANS thanks David E. Steitz and NASA for the above information]

20 Meter AMSAT Net - 1900 UTC, Sundays

There has been an uptick in participation on the AMSAT 20 Meter net since it announced their new format which began 9 Nov.

The results have been encouraging. Check-ins have gone from 2-3 before the change to 11 last Sunday, 23 Nov. We did not run the net on 16 Nov. due to excess competition with the ARRL Sweepstakes - SSB Contest. Comments have been favorable so we will continue the net for a while and try to put out an occasional reminder. Once again, dust off your 20 Meter Rig, put up at least a dipole, and give us a call. The net meets at 1900 UTC, Sunday afternoons, on 14.282 MHz. Bring your questions and comments - we'll try to provide a "Hole."

[ANS thanks Keith W5IU and Larry W7LB for the above information]

W70 Wraps Up 10 Day A0-7 Commemoration

The W70 activity wrapped up on Monday afternoon November 24. Patrick Stoddard WD9EWK/VA7EWK thanks the 24 operators who put W70 on the air from locations all over the continental USA, on both HF and the satellites, . These operators logged almost 2500 QSOs as W70 on several HF bands, all of our current amateur satellites supporting voice and CW (A0-7, A0-73, F0-29, S0-50), and even one QSO using the ISS packet/APRS digipeater.

Patrick is in the process of designing the W70 QSL card. It will be a folding card, with photos and a brief history of A0-7. It will incorporate the original AMSAT A0-7 QSL card issued for SWL reports from the 1970s. Patrick thanks Andy W5ACM "for providing me a high-resolution scan of a clean card! I have already received over 100 QSL requests in my mailbox, and Logbook of the World is reporting 781 W70 QSOs have been confirmed in that system.

"It has been fun to hear people talking about the oldest amateur satellite still in operation. Some of W70's HF operators were active on A0-7 in the 1970s, and at least one had worked W70 before emailing me to request being a W70 operator."

The following is the list of operators who put W70 on the satellites:

AA5PK
KB1PVH
KB1RVT
KB6LTY

KF5YXV (now W5CBF, also C06CBF)
W1PA
W4U00
W5PFG
W5RKN
WA3NAN
WD9EWK

The following stations are those who volunteered to work HF as W70
from
all over the continental USA:.

AC0RA
K6FW
K7QI
KB6LTY
KC4LE
KF5YXV (now W5CBF)
KK5D0
KK6NWJ
N5HYP
NX9G
W1GIV
W2JV
W5PFG
W6GMT
W6ZQ
W700

Patrick is quick to pass on credit to where it is due. "Brock W6GMT was on HF every morning during the 10 days from Minnesota. Other satellite operators helped by working many HF shifts. George W1GIV in Connecticut worked many hours during the first weekend, logging almost 400 stations across the USA and many other countries - and he has never tried working the satellites!"

Whether an operator worked only one satellite pass, one 60-minute shift on HF, or every single day during the 10-day event, the success of this special-event station is owed to everyone who wanted to be a part of W70. This worked out so much better than Patrick could have hoped, and certainly better than W70 would have been if Patrick were the only operator putting the call on satellite passes.

[ANS thanks Patrick WD9EWK/VA7EWK for the above information]

Deadline Looms for Proposals to Host Scheduled ISS Contacts in 2015

Message to US Educators
Amateur Radio on the International Space Station
Contact Opportunity

There are just two weeks left for submitting contact proposals for the May 1 to December 31 period.

Please share the following with teachers, administrators and leaders at your local schools, museums, science centers and scouting organizations.

The Amateur Radio on the International Space Station (ARISS) Program is seeking formal and informal education institutions and

organizations, individually or working together, to host an Amateur Radio contact with a crew member on board the ISS. ARISS anticipates that the contact would be held between May 1, 2015 and December 31, 2015. Crew scheduling and ISS orbits will determine the exact contact dates. To maximize these radio contact opportunities, ARISS is looking for organizations that will draw large numbers of participants and integrate the contact into a well-developed education plan.

THE DEADLINE TO SUMBIT A PROPOSAL IS DECEMBER 15, 2014.

The Opportunity

Crew members aboard the International Space Station will participate in scheduled Amateur Radio contacts. These radio contacts are approximately 10 minutes in length and allow students and educators to interact with the astronauts through a question-and-answer session.

An ARISS contact is a voice-only communication opportunity via Amateur Radio between astronauts and cosmonauts aboard the space station and classrooms and communities. ARISS contacts afford education audiences the opportunity to learn firsthand from astronauts what it is like to live and work in space and to learn about space research conducted on the ISS. Students also will have an opportunity to learn about satellite communication, wireless technology, and radio science. Because of the nature of human spaceflight and the complexity of scheduling activities aboard the ISS, organizations must demonstrate flexibility to accommodate changes in contact dates and times.

Amateur Radio organizations around the world, NASA, and space agencies in Russia, Canada, Japan and Europe sponsor this educational opportunity by providing the equipment and operational support to enable direct communication between crew on the ISS and students around the world via Amateur Radio. In the US, the program is managed by AMSAT (Radio Amateur Satellite Corporation) and ARRL (American Radio Relay League) in partnership with NASA.

More Information

Interested parties can find more information about the program at www.ariss.org and www.arrl.org/ARISS.

More details on expectations, audience, proposal guidelines and proposal form, and dates and times of Information Sessions are available at www.arrl.org/hosting-an-ariss-contact.

Please direct any questions to [ariss\(a\)arrl.org](mailto:ariss(a)arrl.org).

[ANS thanks ARISS for the above information]

Design The Next AMSAT Satellite!

At the 2014 AMSAT Space Symposium AMSAT Vice President - Engineering Jerry Buxton announced the plan for the next generation of AMSAT satellites. "The door is open for everyone, to submit their ideas. AMSAT Engineering has a long term strategy and this is the first step."

The Engineering long term strategy includes the following goals

Advancement of amateur radio satellite technical and communications

skills

Enhance international goodwill

Grow and sustain a skilled pool of amateur radio satellite engineers

Establish and maintain partnerships with educational institutions

Develop a means to use hardware common to all opportunities

With respect to the last goal Jerry said "Within the bounds of the type of satellite it takes to achieve any of the various orbit opportunities, let's consider in those plans the possibility of developing a platform that can suit any and all orbits. Perhaps a modular CubeSat, using a common bus as we did in Fox-1, which gives great flexibility in building and flying different sizes and configurations of CubeSats with simple common-design hardware changes."

Submissions should be thorough and contain the following information. The purpose of the proposal is not just in suggesting an idea; being an all-volunteer team AMSAT needs your help in carrying out the idea.

Design

Implementation - CubeSat platform

Estimated timeline

Cost - volunteer resources, commercial (COTS) units

Launch - how does it get to orbit

Strategy - how it fits into AMSAT's Engineering long term strategy

As mentioned above the idea should be based on the CubeSat platform. This is the standard through which we will look for launches in the foreseeable future.

In considering your proposal, Jerry encourages you to contact him (n0jy at amsat dot org) for more details on the criteria. A guidebook to the criteria is now available for download at <http://tinyurl.com/ANS334-DesignGuide>. In particular, if you plan to include a university as a partner to provide experiments or other support and you are not representing that university, please contact Jerry for assistance in working with our existing partners or establishing a new partnership.

"Being amateur radio operators, it is easy for us to fall into a particular trap because of our history of communicating with other amateurs throughout the world" says Jerry. "Specifically, most people who are not already involved in the world of satellite technology are unaware of or simply overlook the provisions of the current ITAR and soon to be EAR export rules particularly with regard to deemed exports which requires governmental permission to discuss satellite projects with foreign nationals."

While all amateurs are invited to submit ideas, U.S. amateurs must take particular care of they choose to become involved in a collaboration which includes individuals from other countries. It is permissible to receive ideas and proposals from outside the U.S., but it is not permitted for U.S. Persons to export or share design ideas with other countries unless they have taken the proper steps to insure compliance with ITAR and deemed export rules.

Additionally, those wishing to work on proposals should use care in presenting themselves in their contacts. While the goal is for AMSAT to build and launch the satellite, it is not an AMSAT project until it is accepted by the AMSAT Board of Directors. It is acceptable to represent yourself as members of a project team that plans to submit a proposal to AMSAT for a future satellite project, as the AMSAT name is well known.

"It is not our intention that ideas be submitted to AMSAT-NA which

would be more appropriately handled by an AMSAT organization in a country where AMSAT is established. AMSAT-NA is seeking ideas from amateurs in North America and will certainly consider ideas from amateurs in countries which do not have an established AMSAT organization or relationships with an existing AMSAT organization."

The deadline for submissions is May 30, 2015. After the submission date the ideas will be screened for completeness and then reviewed by a board consisting of the AMSAT Engineering Team, AMSAT Senior Officer and Board of Directors representatives, and aerospace industry members. The review board may modify or consolidate ideas and will consider which meet the criteria to become a project based on feasibility, cost, and the ability to bring value to the amateur satellite community. The review process is expected to be completed in September 2015.

For those ideas selected to become a project which satisfy the requirements for an ELaNa launch, the idea authors will be asked to work with the AMSAT Engineering Team on an ELaNa proposal.

The Engineering Team will then work on the details of execution for the selected project(s) and present a proposal to the AMSAT Board of Directors in October 2015 for final approval to begin work. Once approved, any ELaNa proposals will be submitted in November 2015 and the project(s) will move forward.

Now is the time for YOU to begin working on the next AMSAT satellite!

[ANS thanks Jerry N0JY for the above information]

ARISS News

>From 2014-11-10 to 2014-12-07, there will be no US Operational Segment (USOS) hams on board ISS. So any schools contacts during this period will be conducted by the ARISS Russia team.

ARISS-US Contact Proposal Window for 2015 contacts Closed December 15

One more reminder that the window for submitting proposals for an US ARISS contact during 2015 ends December 15. See the related post above.

Interested parties can find more information about the program at www.ariss.org and www.arrrl.org/ARISS.

More details on expectations, audience, proposal guidelines and proposal form, and dates and times of Information Sessions are available at

www.arrrl.org/hosting-an-ariss-contact.

Please direct any questions to [ariss\(a\)arrrl.org](mailto:ariss(a)arrrl.org).

All are encouraged to share this information with schools and other educational entities. A simple conversation with a teacher or an administrator can make all the difference in getting a school involved in the once in a lifetime opportunity.

[ANS thanks ARISS, Charlie AJ9N and David AA4KN for the above information]

Satellite Shorts From All Over

+ ARRL Public Relations Manager Sean Kutzko, KX9X, is featured as he hunts satellite DX from the ARRL Headquarters station, W1HQ. During a pass that brought the FO-29 satellite up the middle of the Atlantic, Sean worked DF6WE on CW on November 19. See the video at <https://www.facebook.com/video.php?v=10152636637992408>

[ANS thanks the ARRL Facebook Page for the above information]

+ Artsat2 Ham radio deep space launch postponed
<http://amsat-uk.org/2014/11/28/ham-radio-deep-space-launch-delayed/>

[ANS thanks ASMSAT-UK for the above information]

+ Popular Electronics magazine archive from the 1950's through the 1980's has been made available online. They are PDF files:

<http://tinyurl.com/ANS334-Poptronics>

[ANS thanks americanradiohistory.com for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
EMike McCardel, KC8YLD
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